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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,334	07/02/2003	Horst Wittur	VGBS-40004	3803
7590 PYLE & PIONTEK ROOM 2036 221 N LASALLE CHICAGO, IL 60601			EXAMINER PICO, ERIC E	
			ART UNIT 3654	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/26/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/612,334	<b>Applicant(s)</b> WITTUR ET AL.	
	<b>Examiner</b> Eric Pico	<b>Art Unit</b> 3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-10 and 12-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-10 and 12-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/05/2006 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim(s) 1, 2, 10, and 15-17 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaguchi U.S. Patent No. 6626266 in view of Heikkinen U.S. Patent No. 4756388, Damien U.S. Patent No. 5651245, and Wilcox U.S. Patent No. 4624097 and De Angelis et al. U.S. Patent No. 5566786.

4. **Regarding claim 1**, Hamaguchi discloses a gearless cable-operated elevator comprising a drive sheave drive including a drive sheave 10, several parallel carrier cables 14, and a spaced counter sheave 17, the cables 14 being guided from the drive

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sheave 10 to the counter sheave 17 and arranged above a cage 4 with guide rails 6, 7 being provided for the cage 4 and a counterweight 5 being attached to the carrier cables 14, for a machine-room-free installation, characterized in that the carrier cables run in semicircular grooves in the sheaves 10, 17 having undercut portions.

5. Hamaguchi is silent concerning several parallel carrier cables, and a spaced counter sheave, the cables being guided from the drive sheave to the counter sheave, back to the drive sheave, and wrapped around the drive sheave, characterized in that the carrier cables are steel cables having a nominal diameter between 5 to 7 mm and run in sheaves having undercut portions each with a width between 1 and 3 mm and that the ratio of the drive sheave diameter to the nominal diameter of the carrier cables is less than 40.

6. Heikkinen teaches a drive sheave drive 3, several parallel carrier cables 4, and a spaced counter sheave 2, the cables 4 being guided from the drive sheave 3 to the counter sheave 2, back to the drive sheave 3, and wrapped around the drive sheave 3.

7. Damien teaches carrier cables 1 are steel cables 21.

8. De Angelis et al. teaches a synthetic fiber cable able to have a nominal diameter of essentially 7 mm reducing the drive sheave diameter significantly.

9. Wilcox teaches the ratio of a drive sheave diameter to the nominal diameter of carrier cables less than 40, shown in Column 3, Lines 5-23.

10. It would have been obvious to one of ordinary skill in the art at the time of the invention to guide the cables disclosed by Hamaguchi from the drive sheave to the counter sheave, back to the drive sheave, and wrapped around the drive sheave as

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taught by Heikkinen to use thinner cables thereby reducing the diameter of the traction sheave, as a result, the torque on the shaft of the gearless motor will be less and it also becomes possible to use a smaller motor.

11. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the carrier cables disclosed by Hamaguchi steel cables as taught by Damien to have a very good uniformity of diameter, reduce permanent elongation and reduce risk to damage of members for winding the cable.

12. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the carrier cables disclosed by Hamaguchi a nominal diameter between 5 to 7 mm as taught by De Angelis et al. to decrease the ratio of diameter of the drive sheave to nominal diameter of the carrier cables

13. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

14. Furthermore, it would have been obvious to one of ordinary in the art at the time of the invention was made to make the minor undercut portions disclosed by Hamaguchi each with a width between 1 and 3 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

15. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to characterize the ratio of the drive sheave diameter to the nominal diameter of the carrier cables disclosed by Hamaguchi less than 40 as taught

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by Wilcox to decrease the diameter of the drive sheave and reduce the torque required to drive the elevator. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

16. **Regarding claim 2**, Hamaguchi is silent concerning the ratio of the drive sheave diameter to the nominal diameter of the carrier cables being essentially 30.

17. Wilcox teaches the ratio of the drive sheave diameter to the nominal diameter of the carrier cables being essentially 30.

18. It would have been obvious to one of ordinary skill in the art at the time of the invention to characterize the ratio of the drive sheave diameter to the nominal diameter of the carrier cables disclosed by Hamaguchi being essentially 30 as taught by Wilcox to decrease the diameter of the drive sheave and reduce the torque required to drive the elevator. Furthermore, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ (CCPA 1980).

19. **Regarding claim 10**, Hamaguchi is silent concerning the drive sheave and the counter sheave of the drive sheave drive are vertically arranged with respect to one another and in the area of a shaft head in the area of a shaft pit.

20. Heikkinen teaches a drive sheave 3 and counter sheave 2 of drive sheave that are vertically arranged with respect to one another and in the area of shaft head in the area of a shaft pit, shown in Figure 1.

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21. It would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the drive sheave and the counter sheave of the drive sheave disclosed by Hamaguchi vertically with respect to one another and in the area of a shaft head in the area of a shaft pit as taught by Heikkinen to accommodate the elevator components within the environmental restraints of the shaft.

22. **Regarding claim 15**, Hamaguchi discloses a cage suspension for the elevator (Embodiment 1) with a ratio of 1 to 1 (Figures 1, 2, and 3).

23. **Regarding claim 16**, Hamaguchi discloses a loose pulley cage suspension for the elevator (Embodiment 2) with a ratio of 2 to 1 (Figures 6 and 7).

24. **Regarding claim 17**, Hamaguchi is silent concerning the carrier cables single-layer round core cable.

25. Damien teaches single-layer round core 3 cable 1.

26. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the carrier cables disclosed by Hamaguchi single-layer round core cable as taught by Damien to have a very good uniformity of diameter, reduce permanent elongation and reduce risk to damage of members for winding the cable.

27. Claim(s) 6, 7 and 9 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaguchi U.S. Patent No. 6626266 in view of Heikkinen U.S. Patent No. 4756388, Damien U.S. Patent No. 5651245, and Wilcox U.S. Patent No. 4624097 and De Angelis et al. U.S. Patent No. 5566786 as applied to claim 1 above, and further in view of Aulanko et al. U.S. Patent No. 5429211.

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28. **Regarding claim 6**, Hamaguchi is silent concerning the elevator configured for useful cage loads of up to 2000kg and the carrier cables have a nominal diameter of essentially 7 mm, and the ratio of the drive sheave diameter to the nominal diameter of the carrier cables preferably being about 34.

29. Aulanko et al. teaches a passenger elevator system with a load capacity of 800 kg.

30. It would have been obvious to one of the ordinary skill in the art at the time of the invention to configure the passenger elevator system of Hamaguchi for useful cage loads of up to 2000 kg as taught by Aulanko et al. to decrease the ratio of diameter of the drive sheave to nominal diameter of the carrier cables. Further, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ (CCPA 1980).

31. It would have been obvious to one of the ordinary skill in the art at the time of the invention to make the carrier cable disclosed by Hamaguchi with a nominal diameter essentially 7 mm to further decreasing the ratio of diameter of the drive sheave to nominal diameter of the carrier cables to about 34. Further, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ (CCPA 1980).

32. **Regarding claim 7**, Hamaguchi is silent concerning the elevator being configured for useful cage loads between 300 kg and 1000 kg in particular.

33. Aulanko et al. teaches a passenger elevator system with a load capacity of 800 kg.



34. It would have been obvious to one of the ordinary skill in the art at the time of the invention to configure the passenger elevator system of Hamaguchi for useful cage loads between 300 kg and 1000 kg as taught by Aulanko et al. Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

35. **Regarding claim 9**, Hamaguchi is silent concerning the elevator characterized in that, for adaption to the occurring cable forces alone, the number of applied carrier cables is variable in the drive sheave drive.

36. Aulanko et al. teaches the drive sheave having a plurality of cable grooves 19 on its drive sheave 18 by which the number of applied carrier cables can be varied due to occurring cable forces alone

37. It would have been obvious to one of ordinary skill in the art at the time of the invention to vary the number of applied cables as taught by Aulanko et al. in the drive sheave disclosed by Hamaguchi to adapt to the occurring cable forces.

38. Claim(s) 8 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaguchi U.S. Patent No. 6626266 in view of Heikkinen U.S. Patent No. 4756388, Damien U.S. Patent No. 5651245, and Wilcox U.S. Patent No. 4624097 as applied to claim 1 above, and further in view of Honda U.S. Patent No. 4591025.

39. **Regarding claim 8**, Hamaguchi is silent concerning the counter sheave serves simultaneously as a distancing deflection sheave.

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40. Honda teaches an elevator system configured in that counter sheave 2 is simultaneously a distancing deflection sheave.

41. It would have been obvious to one of the ordinary skill in the art at the time of the invention to configure the elevator system of Hamaguchi in that counter sheave 2 is simultaneously a distancing deflection sheave as taught by Honda to reduce the number of sheaves creating more area in the hoistway.

42. Claim(s) 12-14 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaguchi U.S. Patent No. 6626266 in view of Heikkinen U.S. Patent No. 4756388, Damien U.S. Patent No. 5651245, and Wilcox U.S. Patent No. 4624097 as applied to claim 1 above, and further in view of Hollowell International Publication No. 99/43595.

43. **Regarding claim 12**, Hamaguchi is silent concerning the drive sheave and the counter sheave of the drive sheave drive are arranged on the bottom or on the roof of the cage.

44. Hollowell et al. teaches an elevator system, characterized in that a drive sheave 30 and a counter sheave 34 of the drive sheave drive are arranged on the bottom of a cage 16.

45. It would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the drive sheave and the counter sheave of the drive sheave drive disclosed by Hamaguchi on the boom of the cage as taught by Hollowell et al. to accommodate the elevator components within the environmental restraints of the shaft.

46. **Regarding claim 13**, Hamaguchi is silent concerning the drive sheave drive is fixed to an elevator frame for the elevator.

47. Hollowell et al. discloses an elevator system, characterized in that drive sheave 30 is fixed to an elevator frame 16 for the elevator.

48. It would have been obvious to one of ordinary skill in the art at the time of the invention to fix the drive sheave drive disclosed by Hamaguchi to an elevator frame for the elevator as taught by Hollowell et al. to reduce space within the hoistway and facilitate easy access to the elevator drive sheave.

49. **Regarding claim 14**, Hamaguchi is silent concerning holding elements for the drive sheave drive are integrated in a cage frame or in a cage main support.

50. Hollowell et al. teaches an elevator system, characterized in that holding elements for the drive sheave 30 are integrated in the cage frame 16.

51. It would have been obvious to one of ordinary skill in the art at the time of the invention to integrate holding elements to the drive sheave drive disclosed by Hamaguchi a cage frame as taught by Hollowell et al. to reduce space within the hoistway and facilitate easy access to the elevator drive sheave.

52. Claim(s) 18 and 19 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaguchi U.S. Patent No. 6626266 in view of Heikkinen U.S. Patent No. 4756388, Damien U.S. Patent No. 5651245, and Wilcox U.S. Patent No. 4624097 as applied to claim 1 above, and further in view of Aulanko et al. U.S. Patent No. 5665944.

53. **Regarding claim 18**, Hamaguchi is silent concerning a motor of the drive sheave drive is a three-phase asynchronous motor or a three-phase synchronous motor.

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54. Aulanko et al. teaches a three-phase asynchronous and three-phase synchronous drive sheave motor for use in a gearless elevator system. The use of the motor taught by Aulanko et al. minimizes the drive sheave as well as adds additional space within the hoistway due to its small size.

55. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the motor disclosed by Hamaguchi a three-phase asynchronous or three-phase synchronous drive sheave motor as taught by Aulanko et al. to minimize space within the elevator hoistway as well as drive the elevator system

56. **Regarding claim 19**, Hamaguchi is silent concerning a motor of the drive sheave drive embodied without mechanical emergency braking device.

57. Aulanko et al. teaches a drive sheave embodied without a mechanical emergency stop braking device to minimize the size of the drive sheave as well as prolong the life span of the drive sheave

58. It would have been obvious to one of the ordinary skill in the art at the time of the invention to make the drive sheave disclosed by Hamaguchi a drive sheave embodied without a mechanical emergency stop braking device as taught by Aulanko et al. to increase the life span of the drive sheave.

### ***Response to Arguments***

59. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Pico whose telephone number is 571-272-5589. The examiner can normally be reached on 6:30AM - 3:00PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Katherine Matecki can be reached on 571-272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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